NOVEMBER/DECEMBER 2023

BAEL44/CAEL44 — BASIC PHYSICS II

Time : Three hours | Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is meant by interference of light?

2. Define polarization.

3. What is Rayleigh scattering of light?

4. What is expansion for LASER?

5. What are isotopes?

6. Define natural radioactivity.

7. Write any two properties of nucleus.

8. What are quarks?

9. State postulates of special theory of relativity.

10. State twin paradox.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Discuss the formation of interference fringes in a thin wedge shaped film.

Or

(b) Mention Biot's laws for rotatory polarization.

12. (a) Write short notes on types of spectra.

Or

(b) Explain the principle and action of laser.

13. (a) Describe principle, construction and working of Bainbridge's mass spectrometer.

Or

(b) List out the uses of radio isotopes.

14. (a) Explain the liquid drop model of the nucleus.

Or

(b) Write a note on anti-particles.

15. (a) Deduce Galilean transformation equations.

Or

(b) Explain relativistic length contraction.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Give the theory of Newton's rings and describe an experiment to determine the wavelength of light using these rings.

17. Describe the construction and working of a Ruby laser.

18. Discuss Millikan's experimental verification of Einstein's photoelectric equation.

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19. Explain the salient features of nuclear shell model.

20. Obtain Einstein's mass energy relation.
